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THE PLANT DISEASE BULLETIN

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THE PLANT DISEASE SURVEY

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CONTENTS

Potato..... 149
Sweet potato.... 151
Cabbage..... 152
Celery..... 152
Cotton..... 153
Sugar cane..... 154
Apple..... 154
Raspberry..... 157
Pecan..... 158
Walnut..... 159
Citrus fruits... 159

POTATO DISEASES IN KENTUCKY

The following reports by J. S. Gardner, Field Agent in Horticulture of the University of Kentucky, are of especial interest:

Early blight. The occurrence of early blight is spotted, some sections entirely swept as early as September 25; in others no more than 20% at killing frost. The early planted Cobblers suffered worst. A strain of Cobbler, grown by Jacob Klingenfuss, Jeffersontown, later in maturing and a decidedly heavier yielder than the majority of Cobbler strains in Jefferson County, takes the blight so late as to almost justify its reputation as being "blight proof".

Leaf roll. Among the stocks of Cobbler examined in connection with certification, the percentage of leaf roll observed was as low as 3%; in others, as high as 12-15%. Common stocks show as much as 60%. Late planted Cobbler shows less than normally planted. The Bull Moose variety is considered by many growers as completely "run out" and many fields look it, a percentage of leaf roll of 80-100%. Green Mountain is relatively free. Hoosier Boy (McCormick) yields well in spite of the 15-50% of leaf roll found on it.

Common scab is more prevalent this year than usual. The district around Worthington, Jefferson County, is worst hit, many cases of 75-100%. The management of one of our produce exchanges is considering admitting a 15% infection as "commercially free". The Green Mountain and Carman No. 2 show more scab than Irish Cobbler. Control through land treatment with sulfur appears to have some merit. With Texas Gulf inoculated sulfur and Dorsch superfine plain sulfur at 300 pounds per acre there appears to be no control but at 600 pounds there is a measurable decrease; in fact, where sulfur was found (and there was not enough moisture for the sulfur to disintegrate) no scab was found. Both forms equally effective, apparently. The yield was reduced 20% where the 600 pounds application was used.

Mosaic. Very little of the distinct mottling type, but considerable of the frilling of leaves, raised portions between mid-ribs and veins, accompanied by a sickly green color. Of the acreage in Jefferson County visited, 30% had mosaic in excess of 3%, some fields running 60%. In the gardening sections of the County the higher percentages were found.

Tipburn and Fusarium wilt. Probably the worst case of tipburn shows a percentage of less than 5. Some strains of Cobbler show as much as 3% of Fusarium wilt. Generally less than 1% in selected stocks.

HOPPER-BURN AND TIP-BURN OF POTATO

Massachusetts: Very much less tip-burn than usual. Probably on account of the wet season. (Anderson, September 1).

Connecticut: More tip-burn than usual and with late blight responsible for considerable injury, both appearing responsible for premature death of some of the late varieties. (Clinton, October 15).

Maryland: Tip-burn unusually severe in western part of state. (Temple and Jehle, September 1).

Ohio: Hopper-burn very abundant in fields where a Bordeaux spray program was not carried out. The dry weather of September favored the disease and hastened the consequent premature ripening of potato tops. (Detmers, October 15).

Michigan: Common and destructive on southern half of Lower Peninsula. Loss less than in 1921. (Department of Botany, October 15).

Minnesota: Hopper-burn was general through the state. Considerable injury done in the earlier potato growing sections. Reached the northern part of the state too late to do much damage. (Section of Plant Pathology, September 1).

South Dakota: Hopper-burn was very common in unsprayed fields; up to 20% damage. (Evans, October 1).

POTATO LEAK CAUSED BY PYTHIUM OR RHIZOPUS REPORTED FROM TEXAS AND MINNESOTA

Traces of this disease occurred in the Texas fields at digging time. Nearly 1% loss was estimated by J. J. Taubenhaus.

About 15% of the tubers in an acre plot at University Farm, St. Paul, Minnesota were ruined early in October according to a report from the Section of Plant Pathology.

SWEET POTATO DISEASE REPORTS

Fusarium stem rot caused by Fusarium spp.

South Carolina: Six records for the crop of 1922. This shows a greater distribution and abundance in the state than we had suspected. Some of them were very light infestations, others severe. Some of the severe ones were first infestations due to buying diseased plants. We are making it the policy of the Botany Division here to encourage the home production of as many farm and garden seeds as can be done, in order to prevent disease dissemination. (Ludwig, November 1).

Mississippi: Common, but not nearly so serious as in former years. (Neal, October 15).

Arkansas: Generally distributed, severe in some places. (Elliott, November 1).

Kansas: Losses as high as 75% in Garden City district. Average about 10% there. Yellow Jerseys show most infection. Porto Rico shows marked resistance, although not immune. Hill selected potatoes show a reduction of disease, in one plot selected showed trace while unselected showed 15%. (Stokdyk, October 15).

Black rot caused by Sphaeronema fimbriatum

Mississippi: This disease, although common on the crop now being harvested, is not nearly so serious as was the case two or three years ago. Growers are informing themselves as to this disease, and are insisting on healthy seed stock and plants. (Neal, October 15).

Louisiana: More or less common in all parts of the state and in some localities causing considerable loss. (Edgerton, November 1).

Arkansas: Less than usual. Dry weather probably affected reduction. (Elliott, November 1).

Kansas: Present to the extent of 15% in untreated fields. Treated fields free. Average loss for the state about 3%. (Stokdyk, October 15).

Soil rot caused by Acrocystis batatae

Kansas: Severe in some fields; 20% loss reported in one field. (Stokdyk, September 1).

Three percent average damage for state where control measures were not practiced. (Stokdyk, October 15).

Scurf caused by Monilochaetes infuscans

South Carolina: Present and apparently rather common. (Ludwig, November 1).

Mississippi: Very few reports have been received so far. Becoming less prevalent. (Neal, October 15).

Kansas: Present in most fields. Damage not severe. Treated seed free from the disease. (Stokdyk, October 15).

Mosaic (cause undetermined)

Arkansas: Traces found in most Nancy Hall fields. (Elliott, Nov. 1).

Charcoal rot caused by Sclerotium bataticola

Louisiana: More or less common, but of minor importance. (Edgerton, November 1).

DOWNY MILDEW INJURIOUS TO CABBAGE SEEDLINGS IN PARTS OF CALIFORNIA AND FLORIDA

Under date of October 15, W. T. Horne of the University of California, writes that downy mildew was reported from Oxnard, Ventura County, where it was causing serious injury to very young plants in the seedbed. Cotyledons were attacked and apparently destroyed and plants said to be killed.

In Florida, W. B. Tisdale found the disease doing considerable damage in plant beds this year and probably killed 20% of the plants in certain beds or rendered them unfit for use. Collards were less severely affected than cabbage. The disease was checked to some extent by spraying the seedlings with 3-3-50 Bordeaux.

CELERY DISEASE REPORTS

Late blight caused by Septoria petroselini apii

Connecticut: Bad but probably not as bad as at first threatened, as fall was fairly dry. Probably more than average amount. (Clinton, November 1).

Pennsylvania: Late blight severe in many sections; 40% loss reported in Lancaster County, and 15% loss in Philadelphia County. Spraying has failed in several instances this year. (Thurston, November 1).

Michigan: Extremely severe in all regions where celery is grown extensively. Loss practically total with last crop. Muskegon and Kalamazoo areas suffered most. (Coons, November 1).

Early blight caused by Cercospora apii

Connecticut: At least the average damage and perhaps more. (Clinton, November 1).

New York: In occasional fields I observed Cercospora blight to be

decidedly destructive. Those growers who applied a fungicide thoroughly obtained a perfectly satisfactory control even during the extremely favorable season for the development of blight. (H. W. Dye, October 18).

Michigan: Not prevalent. (Coons, November 1).

Bacterial leaf spot caused by Pseudomonas apii

New York: (Western) Bacterial blight was also present in about the usual amount. (Dye, October 18).

Michigan: Common and rather disfiguring on Golden Self-blanching celery at Niles and Decatur. (Coons, November 1).

Minnesota: We have found a bacterial leaf spot on celery which is apparently caused by Bacterium apii. This is the first time we have found this disease. (Louise Dosdall, August 2).

Yellows caused by Fusarium sp.

Michigan: As usual. Known from practically all celery growing areas. (Coons, November 1).

TEXAS AND ARKANSAS REPORT ON COTTON DISEASES

Wilt caused by Fusarium vasinfectum

Texas: Fairly prevalent in the light sandy soils; 1% loss. (Taubenhaus, October 15).

Arkansas: Much less damage than usual due to dry weather. Some fields considerably injured but practically no damage on "buck-shot" land. (Elliott, October 15).

Anthracnose caused by Glomerella gossypii

Texas: Traces. Unimportant. (Taubenhaus, October 15).

Rust caused by Acedium gossypii

Texas: A sudden outbreak in Laredo. Quite severe. Amount of loss not yet determined. (Taubenhaus, October 15).

Root rot caused by Ozonium omnivorum

Texas: Not so prevalent this year due to dry weather; loss about 5%. (Taubenhaus, October 15).

Boll rots caused by Colletotrichum, Bacterium malvacearum, etc.

Texas: Quite prevalent; 2% loss. (Taubenhaus, October 15).

Arkansas: Very little, due to dry weather; less than any other year since I have been here. (Elliott, October 15).

Sooty mold (cause undetermined)

Arkansas: This sooty mold has done some damage on dusted cotton, following honey-dew secretion by aphids. Lint is blackened and grade lowered. (Elliott, October 15).

Sunburn (physiological)

Arkansas: More than ordinary, especially on bolls blackened by sooty mold. In many cases, boll rots have followed the sunburn injury. (Elliott, October 15).

SUGAR CANE DISEASES AS REPORTED FROM LOUISIANA

C. W. Edgerton of our important sugar cane state of Louisiana reports as follows concerning sugar cane diseases as of October 15:

Mosaic occurs in all parts of the sugar belt. No way of estimating loss, but it is not as large as has been predicted.

Root rot caused by Marasmius plicatus is common and causing considerable loss. As usual, one of our most serious diseases.

Red rot caused by Colletotrichum falcatum is common and causing about the usual loss.

LATE REPORTS OF FIRE BLIGHT OF APPLE

Recent reports (November 1) from several states concerning fire blight of apple indicate that the late season progress of the disease is less than might have been expected from its general prevalence and severity earlier in the year. Clinton states that there is an average amount in Connecticut, but it is not serious, although in early summer it caused conspicuous injury and death of young twigs. In New Jersey it is said to be common on susceptible varieties. Michigan reports the disease as occasional with no severe damage except early blossom blight of Duchess. J. G. Brown states (September 1) that there has been some fire blight noted in Verde, Skull, and Cherry Valleys, but that it is not bad at this time of year.

The reports from Kentucky and Ohio are quoted:

Kentucky: During early spring a severe outbreak throughout the state. Transparent, Jonathan, Rome, Wealthy, Summer Queen, and Winter Banana very susceptible. Also found on almost all varieties. One Golden Delicious tree, which is claimed to be immune, was affected. No development seemed to come after the middle of June. Apparently the limbs did not canker back into larger branches. Many of the trees seemed to completely outgrow the blight damage.

Pear trees almost all killed with blight. The most progressive apple growers are removing pear trees. (W. W. Magill, November 1).

Ohio: Development in later season has been very much less than is normally expected. In general, the spread of blight infection has been limited. (Selby, November 1).

REPORTS OF APPLE BITTER ROT

The contrast between the reports from Pennsylvania and West Virginia on the one hand, and that from Ohio on the other, is interesting.

Connecticut: More common than usual but only little injury. Only two or three reports. (Clinton, November 1).

Pennsylvania: Seems to be worse than common in southeast part of state. Noticed especially on York Stripe. (Nixon, November 1).

Virginia: Common on early varieties in home orchards in Piedmont and middle sections but of only slight importance in commercial orchards of late varieties. Less than the average year. (Fromme, September 1).

West Virginia: This is the first season that bitter rot has appeared in any appreciable quantity in the important fruit growing counties of eastern West Virginia in my observations in the last nine years. (Berg, October 3).

Arkansas: This disease started out badly in July but was checked by dry weather following. Late apples showed no infection. (Elliott, November 1).

Ohio: There is seldom a season in which there is less bitter rot on apple in Ohio than during the summer of 1922. One or two collections of specimens have been made but no marked occurrences or localized outbreak. (Selby, November 1).

SOOTY BLOTCH AND FLY-SPECK OF APPLE NOT IMPORTANT

These two diseases are reported (November 1) as not important at all in properly cared for orchards. In Maine they are said to be more prevalent than usual but are apparently causing damage only to unsprayed fruit. In Connecticut there is the average amount of both diseases, with sooty blotch, as usual, somewhat more abundant, but not especially conspicuous. Sooty blotch is the more common in Ohio also but both diseases are rare in the state this year, due to the generally prevailing drouth during September. W. W. Magill reports the varieties Grimes, Mann, Delicious, Ben Davis, Winesap, and Stayman as most affected in Kentucky.

FRUIT SPOT (PHOMA POMI) OF APPLE

Connecticut: Conspicuous but probably not much more than the average amount and confined chiefly to unsprayed or poorly sprayed and dusted trees. (Clinton, November 1).

Arkansas: Considerable on Grimes and Jonathan; some on other varieties where not well sprayed. (Elliott, November 1).

Ohio: The importance of this disease in the state is demanding more attention from year to year. This year has been found to be especially serious upon Jonathan, Rome Beauty, Ben Davis, and Grimes varieties. In some orchards it seems to rival scab in occasional loss. (Thomas, November 1).

REPORTS OF APPLE BLOTCH (PHYLLOSTICTA SOLITARIA)

New Jersey: Very rare except on Smith Cider. (Cook, November 1).

Kentucky: Common throughout the state. Especially bad on the following varieties: Ben Davis, Rome, Maiden Blush. Less noticeable on the following: King David, Arkansas Black, Jonathan, and Wealthy. In most cases where two thorough Bordeaux sprays were applied, it was controlled. When old cankers are present, a thorough control does not seem possible the first year. To the commercial grower of Kentucky this disease is not so serious as the scab, due to the fact that most of the varieties grown commercially are not susceptible. (Magill, November 1).

Arkansas: Bad on susceptible varieties where not properly sprayed. (Elliott, November 1).

Ohio: It was reported September 1 that apple blotch had showed less than previous season. This has continued to prove true where the necessary applications of Bordeaux mixture had been made. On the other hand the number of unexpected occurrences and collections reported by orchardists and Farm Bureau workers have been very large. Cases on Northwestern Greening extended development were sent from the central and northwestern portions of the state, while apples shipped from the Rome Beauty areas have contained infection where not thoroughly sprayed. The development of the Phoma spot over a similar seasonable period for 1922 emphasizes again the importance of the applications of Bordeaux mixture to insure marketable apples. (Selby, November 1).

Kansas: Severe in every unsprayed orchard. As high as 80% in some cases. Average loss of state, 10%. (Stokdyk, November 1).

ADDITIONAL REPORTS INDICATE CONTINUED SEVERITY OF APPLE SCAB

Maine: On account of continued rainy weather in spring and early summer, the season has been very favorable for the development of scab. Were it not for a short crop and low prices, the monetary loss from scab would be considerable. Unsprayed Ben Davis apples gave over 75% scabby fruit, while thorough spraying reduced the amount to less than 20%. (Morse, November 1).

Connecticut: Bad. About same or worse than last year, and worse than average

years. Early threatened to be the heaviest infection for years, but later let up somewhat. The worst disease of the year for this host. (Clinton, November 1).

New Jersey: Quite general and very abundant in some localities. (Cook, November 1).

Virginia: General throughout the state but especially prevalent and severe in the northern part of the Shenandoah Valley. Losses will exceed those of previous years. (Fromme, September 1).

Kentucky: Found in every orchard in state. Especially bad on the following varieties: Delicious, Winesap, Ben Davis, Stayman, Black Twig, Early Harvest, Rome, Champion, etc. This past season many growers were unable to control it with their regular spray schedule. This may have been due to rains for several days following the spraying. (Magill, November 1).

Arkansas: Not severe. (Elliott, November 1).

Ohio: The conditions reported September 1 have been a marked feature of the season. The current showers extended infection to the foliage which was not maintained in extended severity during the general drouth of September and early October. This has led to earlier dropping of scab infected leaves than normally occurs with reduced proportion of diseased leaves to drop at end of season. It is now felt that the leaf infection may prove less than promised to occur on September 1, yet it is certainly serious. (Selby, November 1).

Michigan: Extremely severe. Maturity of ascospores too early for ordinary sprays to be efficient. With pre-pink sprays, control much better. Dusting not successful generally. Loss in general about 16%. (Coons, November 1).

Kansas: More severe than usual. One orchard of Delicious showed 95% infection with 50% unmarketable. (Stokdyk, November 1).

SEVERE HAIL INJURY TO APPLE FRUIT REPORTED FROM MAINE

"Quite a section of the apple belt of Maine suffered from the effects of a severe hail storm which occurred in September when the fruit was nearing maturity. Much good fruit was rendered unsalable on account of bruises and even actual cuts in the skin." (Morse, November 1).

IMPORTANT RASPBERRY DISEASES IN ILLINOIS

Under date of November 10, Prof. A. S. Colby of the Department of Horticulture, University of Illinois, sends in the two following interesting notes concerning crown gall and eastern blue stem of the black raspberry:

"Crown gall is the limiting factor in red and black raspberry culture in many sections of Illinois. This disease, coupled with

anthracnose, has put many growers out of business the last few years. These diseases are being spread still more widely by nursery stock, much of which is infected.

"Eastern blue stem, as recently described by R. B. Wilcox, has been found in black raspberry plantations about Peoria and bids fair to become a serious menace to the black raspberry industry there. One grower stated that he secured his plants from a Michigan nursery when the plantation was established four or five years ago."

PECAN DISEASES

Scab caused by Fusicladium effusum

South Carolina: Apparently not especially severe this season. Have had two specimens submitted for diagnosis. (Ludwig, November 1).

Mississippi: Scab was serious again this season along the Gulf Coast, in the Delta counties, and in many localities in the central eastern part of the state. In many groves where susceptible varieties are planted, the crop was a total failure as a result of scab. A number of the large growers in the state are equipping themselves with power sprayers and are spraying for scab control. (Neal, October 15).

Louisiana: Common and the cause of considerable loss on some varieties. (Edgerton, November 1).

Arkansas: Several reports. I do not know how bad it is. (Elliott, November 1).

Rosette (cause undetermined)

South Carolina: Three complaints; in two of which the damage was said to be considerable. Probably quite general. (Ludwig, November 1).

Mississippi: Rosette is becoming common in many of the southern counties. Observed and reported this season from Jackson, Harrison, Pearl River, Clarke, and Lauderdale Counties. (Neal, October 15).

Black pit (cause unknown)

Mississippi: Black pit, a disease, and apparently a physiological trouble, was very destructive all over Mississippi the past season. After the nuts attained considerable size, the husk tissues became black and somewhat pitted, and finally resulted in heavy shedding. The Fruit Disease Pathologist attributes this condition to dry weather the year previous, but although possible, this theory is uncertain. (Neal, October 15).

Nursery blight caused by Phyllosticta caryae

Mississippi: Common again in many nurseries, but not serious. (Neal, October 15).

Mildew caused by Microsphaera alni

South Carolina: One complaint. In this case the nuts were considerably damaged but could not be sure that this fungus was responsible. (Ludwig, November 1).

Dieback caused by Botryosphaeria berengeriana

South Carolina: One complaint. Disease accompanied and probably preceded by rosette. (Ludwig, November 1).

Brown leaf spot caused by Cercospora fusca

South Carolina: Two requests for diagnosis. Probably not very destructive. (Ludwig, November 1).

Leaf spot(cause undetermined)

Louisiana: Very common and responsible to a considerable extent for the early defoliation of the trees. (Edgerton, November 1).

THE WALNUT BLIGHT SITUATION IN OREGON

"Bacterial blight caused by Bacterium juglandis was reported as general throughout the walnut growing sections of Oregon with 10 to 15% of the crop affected. The damage this year was, however, small as compared with the average year, probably due to the early and prolonged dry weather the past season." (Barss, October 15).

GREEN SPOTTING OF CITRUS FRUITS IN FLORIDA

O. F. Burger of the Florida Experiment Station writes as follows on October 28:

> "Recently I have found a considerable number of the oranges going on the northern markets affected with a green spotting. Most of these oranges are of the Parson Brown variety which have been artificially colored. A slight bruising liberates the oil from the cells and this oil on the oranges does not allow them to color up in the coloring room."

Market inspectors and pathologists are asked to watch Florida citrus fruits for this green spotted condition and to send whatever information they may gather to the Plant Disease Survey.

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